

## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

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**Date/Time:** September 9, 2005

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**Agency:** EPA CDPHE

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**Purpose of Contact:** Completion of HRC Enhancements at the 903 Pad and Ryan's Pit areas

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### **Discussion**

As described in the Interim Measure/Interim Remedial Action for Groundwater at Rocky Flats Environmental Technology Site (GW IM/IRA)(DOE, 2005), amendments were to be added directly into the subsurface downgradient of the remedial action areas for the 903 Pad and Ryan's Pit area to enhance or improve the naturally occurring biodegradation of VOCs and enhance groundwater quality. Downgradient of the Ryan's Pit remedial action, the material was to be inserted into the subsurface through Geoprobe boreholes at an appropriate grid spacing to cover the area with the highest residual contaminant concentrations. Insertion of amendments at Ryan's Pit and the 903 Pad area was completed in accordance with the GW IM/IRA as described below.

### **Ryan's Pit Area**

Ten insertion points were placed within an area along the south wall of the previous source removal action at the south wall of the former Ryan's Pit excavation, where the highest residual contamination was present. Insertion of Hydrogen Release Compound (HRC)-X™ was initiated on June 20, 2005 and completed on July 6, 2005. HRC-X™ is an extended release form of HRC®, is made with a proprietary, environmentally safe, polylactate ester formulated for slow release of lactic acid upon hydration to biodegrade chlorinated solvents. The ten points were completed to a depth of 9 feet using a Geoprobe™ as shown on Figure 1 and a total of 510 pounds of HRC-X™ was inserted. The area was checked after material insertion, no subsidence was noted. Upon completion, the area was revegetated.

### **903 Pad Area**

In the area of the 903 Pad remedial action, material was to be inserted into the subsurface in three arcs through the eastward draining paleochannel that is the primary groundwater flow path for this area. These arcs were located where there is the highest possibility of residual contamination and groundwater flow. This will enhance groundwater quality in this area by creating a reducing environment that will assist with the degradation of VOCs. The results of the investigation that determined the area of the highest residual contamination are presented separately.

Insertion of the amendment at the 903 Pad started on June 30, 2005 and was completed on August 12, 2005. A combined 5,710 pounds of HRC® and HRC-X™ were placed into insertion points as shown in the attached figure (Figure 2). The insertion points were placed along a series of three arcs using either a rotary drill rig or a Geoprobe™ along the major groundwater flow path

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through the 903 Pad area. Each hole was filled from bedrock or below to at least the bottom of the clean fill dirt brought in after the 903 Pad remedial action was completed. For insertion points where the rotary drill rig was used, a larger diameter hole was present. At these locations, the clean drill cuttings were mixed with HRC® and HRC-X™ during filling of the insertion points. The insertion points were all inspected after material insertion was completed. The material did not subside over time and no additional HRC® was inserted. After completion of material insertion, drilling equipment was demobilized and the area was revegetated.

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**Contact Record Prepared By:** Annette Primrose

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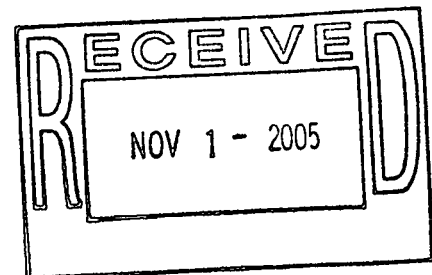
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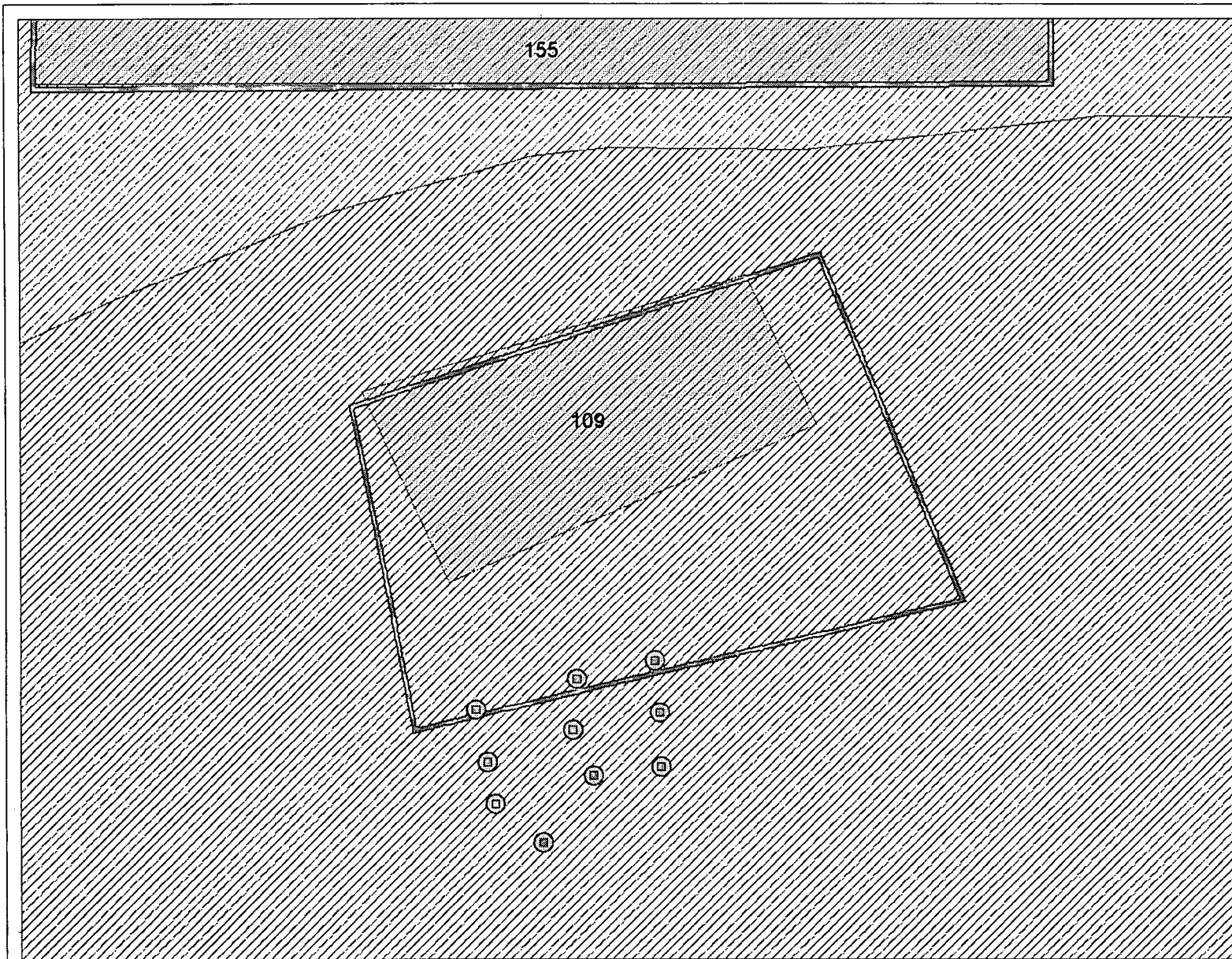
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H. Ainscough, CDPHE  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
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G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Garcia, USEPA  
S. Johnson, K-H ESS  
M. Keating, K-H RISS  
L. Kimmel, USEPA

D. Kruchek, CDPHE  
S. Nesta, K-H RISS  
A. Primrose, K-H RISS  
M. Roy, DOE-RFPO  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS  
C. Zahm, K-H Legal

Additional Distribution:

C. Dayton, K-H ESS  
I. Paton, K-H ESS








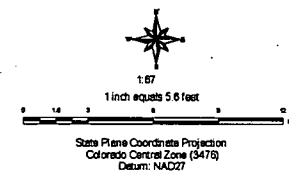


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**Figure 1**

**Borehole Locations  
for the Insertion of HRC  
at Ryan's Pit**

-  Ryan's Pit HRC  
Insertion Points
-  Excavation Boundaries
-  IHSS
- TCE Plumes**
-  >Tier I GWAL
-  >SW Standard



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**Figure 2**

**Borehole Locations  
for the Insertion of HRC  
at the 903 Pad**

- HRC Insertion Points
  - Top of Bedrock Contours
  - HRC Arched Insertion Areas
  - Groundwater Flow Arrows \*
  - Unconsolidated Flow
  - Bedrock Flow
  - Excavation Boundaries
  - TCE Plumes
    - ▨ > Tier I GWAL
    - ▨ > SW Standard
  - CT Plumes
    - ▨ > Tier I GWAL
    - ▨ > SW Standard
- \* Ground water flow direction is indicated by dashed lines in the bedrock and solid lines in the unconsolidated material.

**Standard Map Features**

- Road
- Facility
- Stream



1" = 100'

1 inch equals 64 feet

State Plane Coordinates  
Colorado North Zone  
Datum: NAD27

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